7

REMARKS

Claims 1 – 26 are pending in the application. Claims 1, and 25-26 have now been amended.

Favorable reconsideration of this rejection in view of the above amendments and the following explanations is respectfully requested.

Claim Rejections – 35 U.S.C. § 101

Claim 1 has been amended to reflect statutory subject matter. More particularly the claim has been made to define a computer configured as a pattern recognition apparatus and now also defines an output that produces the grouped nodes, this constituting a concrete result. Such a system can be made use of to provide an updated corporate tree of a company which is discovered directly from the company's computer network.

Claims 2-24 are also respectfully believed to constitute statutory subject-matter since they are dependent on claim 1.

Claim Rejections – 35 U.S.C. § 112

Claim 1 has been amended to more distinctly claim the intended subject matter by adding the words: "Computer device configured as" to the preamble of the claim.
Claim 26 has been amended to more distinctly claim the intended subject matter by changing the word "tool" to "device".

Claim Rejections – 35 U.S.C. § 103

Claims 1-12, 17-19, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher, US publication No. 2002/0013847.

Claims 20, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher in view of Brown, US patent No. 5,941,947.

8

The present application discloses a role search apparatus for grouping nodes according to relationships with other nodes. The apparatus comprises an input for receiving an arrangement of nodes in at least two partitions. One partition may be that of users and the other partition may be that of resources. A pattern recognition unit is associated with the input to search and find relationship patterns amongst the nodes and form at least one group from the user partition based on relationships with nodes in the resources partition. Similar nodes of the user partition share relationships with similar nodes in the second partition, meaning that similar users have similar access permissions to the same resources. As mentioned, the nodes of the first partition are users of a network and nodes of the second partition are resources on the network. The apparatus then groups users according to the relationship patterns discovered above, which are assumed to correspond to users' roles in the organization. Thus all the engineers in the organization may be identified by their common access to certain resources, and the senior engineers may be identified by higher level access to the same resources. The same applies for accounts staff and the senior accountants.

One possible application is to provide updated corporate tree information as required. Generally as people change their positions in a corporate tree their computer status is updated quickly but the company literature is updated more slowly. Such an application provides a way to overcome this time lag.

As a further application the apparatus can assign new access permissions automatically to users as their roles in the organization change, based on the permissions held by nodes already in the new role. What is required is merely that the user node is assigned to the group representing his new role.

Fisher et al. teaches a resource allocation mechanism. More particularly Fisher et al discloses a method and system for improving network management in a data communication network by defining one or more pools of network resources and having the resources automatically allocated, listed and checked for uniqueness. There is no discovery of groups based on this allocation contrary to the requirement of the present claims.

Claim 1 of the present application as amended, defines a pattern recognition apparatus realized by a computer device for grouping nodes according to relationships

9

with other nodes. The apparatus comprises an input for receiving an arrangement of nodes in at least two partitions. The apparatus comprises also a pattern recognition unit that automatically forms at least one group in the first partition from nodes sharing relationships with certain nodes in the second partition. It is noted that the relationships already exist and the groupings are discovered. Then the discovered groups, which are presumed to correspond to users having similar roles in the organization, are provided with common group access definitions. The groupings can be extracted to provide a n up to date corporate tree. Alternatively new nodes can be added to a given group, so as ot share the group's access definitions.

Independent claim 25 of the present application defines a pattern recognition method for electronically grouping nodes according to relationships with other nodes, the method comprising: receiving an arrangement of nodes, the arrangement comprising at least two partitions of the nodes and with predetermined relationships between nodes across the partitions, and automatically finding relationship patterns amongst the nodes using pattern recognition on the nodes and the relationships, thereby to form at least one grouping of nodes of a first of the partitions, wherein the nodes being formed into the grouping share relationships with same ones of a predetermined number of nodes in a second partition. The output then provides the groupings.

Independent Claim 26 of the present application, as amended, defines a reverse engineering device for discovering structure in a partitioned nodal arrangement.

The device comprises an input for receiving an arrangement of nodes and a pattern recognition unit for automatically finding relationship patterns amongst the nodes and automatically finding assigned access permissions for nodes in the first partition to nodes in the second partition.

The examiner argues that Fisher teaches a pattern recognition apparatus for grouping nodes according to relationships with other nodes.

The present application defines in claim 1 and claim 25 a pattern recognition apparatus and method for grouping nodes in accordance with relationships to other nodes, in one partition and sharing relationships with predetermined nodes of the second partition. The above relationships are used to provide access permission for the grouped nodes in the first partition to the associated nodes in the second partition. More

particularly the relationships are discovered by the pattern matching procedure and the nodes are grouped accordingly. As such groups are created having similar relationships.

The data communication network management method disclosed by Fisher et al., defines pools of resources (the equivalent of the second partition nodes) and allocates the resources, which may be scarce, automatically to network users (the equivalent of the first partition nodes) based on their needs. A resource allocation method as in Fisher et al. finds automatically which users need resources, which resources are not in use and matches between user needs and resource availability. Fisher is not interested in grouping the users or determining their access *permissions*.

Relationships amongst users (of first partition nodes), creating of groups of users based on their role relationships, finding relationships of those groups to predetermined resources (second partition nodes) or assigning access permissions of network users to network resources, as disclosed by the present application, is not addressed in the resource allocation problem of Fisher et al. That is to say Fisher teaches resource *allocation* rather than node grouping based on existing access permissions.

Hence, Fisher et al. does not mention or imply *a pattern recognition unit to automatically find relationship patterns and to form groups from the nodes of the first partition that share relationships with predetermined numbers of nodes in a second partition to provide access permissions*. Neither does Fisher output grouped nodes, and certainly does not teach nodes grouped based on the relationships with the resources.

Therefore it is respectfully believed that Claim 1 and independent claim 25 should be allowable.

Claims 2-12 and claims 17-19 are believed to be respectfully allowed since they are dependent on allowable claim 1.

Claims 22-24 rejected over Fisher in view of Brown are believed to be respectfully allowed since they are dependent on allowable claim 1.

Claim 26 of the present application defines a reverse engineering device. The goal of the present application is to discover a structure in a partitioned nodal arrangement by using a pattern recognition unit to automatically find groups and access permissions as defined in claim 26.

11

Fisher et al. discloses a resource allocation system and more particularly a method for improving data communication system management comprising defining pools of network resources and assigning them to network users. Fisher is not concerned with creating groups of nodes in the first partition and is not concerned with the reverse process of finding existing groups of nodes and related assigned access permissions.

Hence, Fisher et al never mentions or even hints at *an arrangement for discovering structure in a partitioned nodal arrangement. Indeed Fisher never attempts to discover any structure. Fisher merely distributes scarce resources between users in an efficient way. Fisher furthermore does not make use of a pattern recognition unit which automatically finds existing relationships between nodes, especially not between user nodes and resource nodes. The resources of Fisher, say bandwidth, are allocated based on the user's needs. The resources are not nodes and the users do not have existing relationships with the nodes that need to be discovered. Fisher certainly does not concern himself with finding assigned common access permissions.*

Therefore it is believed that claim 26 should be respectfully allowed.

The indication of allowable subject matter in claims 13-16 and 20-21 is noted with appreciation.

All of the matters raised by the Examiner have been dealt with and are believed to have been overcome. In view of the foregoing, it is respectfully submitted that all the claims now pending in the application are allowable. An early Notice of Allowance is therefore respectfully requested.

Respectfully submitted,

Martin D. Moynihan
Registration No. 40,338

Date: October 12, 2006

Enclosed:
Petition for Extension (1 Month)